



Equistar Chemicals, LP  
One Houston Center, Suite 1600  
1221 McKinney Street  
P.O. Box 2583  
Houston, Texas 77252-2583  
Phone: 713.652.7200

06/04/2003

### **SARA Title III** **Annual Notification**

Dear Customer:

Attached is the current safety data sheet for the following Lyondell or Equistar product(s) purchased or requested by your company.

<u>EQUISTAR Product Name</u>	<u>Product Number</u>	<u>Material Name</u>	<u>MSDS #</u>
Ethylene Glycol (All Grades)	00000000000005013	MONOETHYLENE GLYCOL	000000003265

This safety data sheet provides important health and safety information; we suggest that you review this document prior to handling the product. For this document to be an effective means of hazard communication, it must be made available to all those who handle and are responsible for operations involving this product. Risk associated with the hazards identified in the safety data sheet may be reduced or avoided if employees and customers are informed, remain alert to their possible occurrence, and adhere to safe work practices.

We recommend that you consult your occupational health and safety specialist to insure that methods used in the handling, storage, disposal, and reporting of these products will be adequate and in compliance with applicable laws and regulations. Information contained herein should not be used for specification purposes.

This safety data sheet has been prepared in accordance with the International Labour Organization sanctioned American National Standards Institute guidelines for Material Safety Data Sheet preparation. For customers within the United States of America, Sections 2 and 15 of this document may contain Supplier Notification information to comply with Section 313 of SARA Title III (40 CFR Part 327.45).

Sincerely,  
Equistar Chemicals, LP  
Product Safety

Attachment



**HMIS (USA)**

Health Hazard	*	1
Fire Hazard		1
Reactivity		0

# EQUISTAR

## Material Safety Data Sheet

### MONOETHYLENE GLYCOL

MSDS No.:  
Validation Date:  
Version No:

00000003265  
05/12/2003  
1.9

**SECTION 1: IDENTIFICATION**

**Product Name:** Ethylene Glycol (All Grades)

**Chemical Name:** 1,2-Ethanediol

**CAS Number:** 107-21-1

**Synonyms:** All Grades includes: Antifreeze, High Purity, Industrial, Polyester Grade

**Chemical Family:** Ethylene Glycols

**Manufacturer:** Equistar Chemicals, LP  
One Houston Center, Suite 1600  
1221 McKinney St.  
P.O. Box 2583  
Houston, Texas 77252-2583

**Telephone Numbers:**

Emergency

Non-Emergency

CHEMTREC 800 424-9300  
EQUISTAR 800-245-4532

Customer Service  
888 777-0232  
Product Safety  
800 700-0946

**SECTION 2: COMPOSITION**

<u>Component Name</u>	<u>CAS #</u>	<u>OSHA PEL</u>	<u>OSHA STEL</u>	<u>ACGIH TLV</u>	<u>ACGIH STEL</u>	<u>Carcinogenic Listing*</u>	<u>Concentration by Wt.%*</u>		
							<u>Avg.</u>	<u>Min.</u>	<u>Max.</u>
1,2-Ethanediol	107-21-1	N/L	N/L	N/L	100 MG/M3 CEILING AEROSOL	N/L		95.0	100.0
Diethylene glycol	111-46-6	N/L	N/L	N/L	N/L				5.0
Water	7732-18-5	N/L	N/L	N/L	N/L				1.0

\*1 = OSHA 2 = IARC 3 = NTP 4 = Others N/L = Not Listed See Section 11 for more information

**SECTION 3: HAZARD IDENTIFICATION****Emergency Overview**

This material is HAZARDOUS by OSHA Hazard Communication definition.

**Signal Word**

WARNING!

**Hazards**

Harmful or fatal if swallowed. Harmful if inhaled or absorbed through the skin. May cause irritation to skin, eyes, and respiratory tract. Affects central nervous system.

**Physical State**

Viscous liquid.

**Color**

Clear, colorless.

**Odor**

Slight sweet odor.

**Odor Threshold**

No value available.

**Potential Health Effects****Routes of Exposure**

Skin. Inhalation Eye

**Signs and Symptoms of  
Acute Exposure**

See component summary.

- *1,2-Ethanediol* May be irritating to the eyes, skin, and respiratory system. May cause effects to the kidneys and central nervous system resulting in kidney failure and brain injury.
- *Diethylene glycol* This substance may cause effects on the central nervous system, liver and kidneys.

**Skin**

Irritating to the skin. Prolonged or repeated contact may cause dermatitis. May be absorbed through the skin and cause toxic effects similar to those resulting from inhalation exposure.

**Inhalation**

Can cause pulmonary edema if aspirated into lungs. May produce symptoms of central nervous system depression including headache, dizziness, nausea, euphoria, loss of equilibrium, drowsiness, visual disturbances, fatigue, unconsciousness and respiratory arrest.

**Eye**

May be irritating to the eyes.

**Ingestion**

Central nervous system symptoms similar to those by inhalation, followed by rapid breathing, increased heart rate, possible toxicity to the kidneys, decreased urine volume and severe metabolic acidosis.

**Chronic Health Effects**

See component summary.

- *1,2-Ethanediol* Prolonged or repeated inhalation or ingestion may result in kidney and liver changes.
- *Diethylene glycol* No adverse chronic human health effects have been reported for this material.

**Conditions Aggravated  
by Exposure**

Pre-existing liver or kidney disorders

**SECTION 4: FIRST AID MEASURES**

Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid. For specific information refer to the Emergency Overview in Section 3 of this MSDS.

**Inhalation**

Immediately remove victim to fresh air. If victim has stopped breathing, give artificial respiration, preferably mouth-to-mouth. GET MEDICAL ATTENTION IMMEDIATELY.

**Eye**

Thoroughly flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation persists, seek medical attention.

**Skin**

Immediately remove excess chemical and contaminated clothing; thoroughly wash contaminated skin with mild soap and water. If irritation persists after washing, seek medical attention. Thoroughly clean contaminated clothing before reuse; discard contaminated leather goods (gloves, shoes, belts, wallets, etc.).

**Ingestion**

NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. Have patient drink several glasses of water then induce vomiting by having patient tickle back of throat with finger. If vomiting does occur, have victim lean forward to reduce risk of aspiration. Immediately seek medical attention.

**SECTION 5: FIRE FIGHTING MEASURES**

NFPA: Health 1; Fire 1; Reactivity 0; Others:

**Classification**

OSHA/NFPA Class IIIA Combustible Liquid.

**Flash Point:**116 °C (241 °F)  
PMCC**Auto-Ignition**

Temperature 398 °C (748 °F)

Flammable Limits: LOWER: 3.2 vol%  
UPPER: 15.3 vol%

Hazardous Combustion Products: Carbon oxides (CO, CO<sub>2</sub>)

**Special Conditions to Avoid:**

Ethylene glycol mist in air is a moderate fire and explosion hazard. Individuals should perform only those fire-fighting procedures for which they have been trained. Fire fighters should wear self-contained breathing apparatus in the positive pressure mode with a full facepiece when there is a possibility of exposure to smoke, fumes or hazardous decomposition products. Cool tanks and containers exposed to fire with water. Cool containers with flooding quantities of water until well after fire is out.

Extinguishing Media Use: Dry chemical. alcohol-resistant foam or CO<sub>2</sub> (carbon dioxide)

**Fire Fighting Instructions:**

**Protective Equipment/Clothing:** Wear an approved positive pressure self-contained breathing apparatus and firefighter turnout gear.

**INSTRUCTIONS:**

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**Release Response**

Contain spill with dike to prevent entry into sewers or waterways. For large spills, dike and pump into properly labeled containers for reclamation or disposal. For small spills, soak up with absorbent material and place in properly labeled containers for disposal. All recovered material should be packaged, labeled, transported and disposed of or reclaimed in conformance with applicable laws and regulations and in conformance with good engineering practices. Reclaim where possible.

Reportable Quantities: See Section 15: Regulatory Information.

## SECTION 7: HANDLING AND STORAGE

**Handling:**

Containers, even those that have been emptied, will retain product residue and vapor and should be handled as if they were full. Do not eat, drink or smoke in areas where this material is used. After handling, always wash hands thoroughly with soap and water. Do not handle near heat, sparks, or flame. Avoid contact with incompatible agents. Use only with adequate ventilation/personal protection. Avoid contact with eyes, skin and clothing. Do not enter storage area unless adequately ventilated. Metal containers involved in the transfer of this material should be grounded and bonded.

**Storage:**

Store containers in a cool, dry, ventilated, fire resistant area away from sources of ignition and incompatible materials. Keep container tightly closed and properly labeled.

## SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

**Engineering Controls:**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. Emergency shower and eyewash facility should be in close proximity (ANSI Z358.1)

**Personal Protection:**

**Inhalation**

A respiratory protection program that meets OSHA's 29 CFR 1910.134 or ANSI Z88.2 requirements must be followed whenever workplace conditions warrant respirator use. Where unknown concentrations are encountered or during an emergency, use NIOSH approved supplied air respirators.

**Skin:** Wear chemical resistant gloves such as rubber, neoprene or vinyl.  
Appropriate protective clothing should be worn to prevent skin contact.

**Eye:** Wear safety glasses as minimum eye protection. Conditions may warrant the use of chemical goggles and possibly a face shield. Consult your standard operating procedure or safety professional for advice. Use protective eye and face devices that comply with ANSI Z87.1-1987.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

<b>Boiling Point:</b>	198 °C (388 °F)	<b>pH:</b>	Not applicable.
<b>Vapor Pressure:</b>	0.05 mm Hg @ 20 °C	<b>Viscosity:</b>	No Data Available.
<b>Specific Gravity:</b>	Solid/Liquid: 1.1135 (Water = 1) Vapor: 2.14 (Air = 1.0)	<b>Water Solubility:</b>	soluble in all proportions.
<b>Octanol/Water Partition Coefficient in Kow:</b>	-1.4 - -1.9	<b>Melting/ Freezing Point:</b>	-13 °C (9 °F)
		<b>Evaporation Rate:</b>	No Data Available.

**SECTION 10: STABILITY AND REACTIVITY**

<b>Chemical Stability</b>	The product is stable.
<b>Conditions to Avoid</b>	None.
<b>Incompatibility with:</b>	
<b>Hazardous Products of Decomposition:</b>	Carbon Monoxide and Carbon dioxide.
<b>Hazardous Polymerization</b>	Hazardous polymerization will not occur.
<b>Reactions with Air and Water</b>	Does not react with air or water.

**SECTION 11: TOXICOLOGICAL INFORMATION**

<b>Product Summary</b>	This substance appears to be of low toxicity, except for possible mild irritant effects in humans. A high dose may produce central nervous system depression, but there are no reports of adverse health effects from occupational exposure. See component summary.
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**CARCINOGENICITY:** Not listed by IARC, NTP, or OSHA.

**Component Summary:**

- 1,2-Ethandiol

<b>LC50 (Inhl)</b>	Rat	10876 MG/KG
<b>LD50 (Oral)</b>	Rat	4700 MG/KG
<b>LD50 (Oral)</b>	Mouse	5500 MG/KG
<b>LD50 (Skin)</b>	Rabbit	9530 UL/KG

**SKIN EFFECTS:** This substance is a mild skin irritant.

**EYE EFFECTS:** This product is expected to be a mild eye irritant.

**Target Organ Effects** CNS depressant. May cause liver and/or kidney damage.

**Reproductive / Development Effects** Ethylene glycol produces birth defects when orally administered to pregnant mice and rats at doses of 500 and 1000 mg/kg/day, respectively, during gestation. The no-effect levels for these effects were 150 and 500 mg/kg/day, respectively, in the mouse and rat. Minimal evidence for birth defects were detected in the offspring of mice exposed to aerosol concentrations up to 2500 mg/m<sup>3</sup>, 6hrs/day during gestation. Dermal exposure of pregnant mice to 3549 mg/kg/day during gestation produced no maternal toxicity and minimal if any birth defects. There is no current information to suggest that ethylene glycol produces birth defects in humans.

- *Diethylene glycol*

**LD50 (Oral)**

Rat 12,600 MG/KG

**LD50 (Oral)**

Mouse 23,700 MG/KG

**LD50 (Skin)**

Rabbit 11,900 MG/KG

**CARCINOGENICITY:** Not listed by IARC, NTP, or OSHA.

- *Water*

**Repeated Dose Toxicity** Not Applicable.

## SECTION 12: ECOLOGICAL INFORMATION

<b>Ecotoxicity:</b>	Laboratory toxicity tests have indicated that EG is not significantly toxic to fish and aquatic invertebrates, although amphibians such as toads and frogs may be more sensitive. Wildlife species are more susceptible to ethylene glycol since mammals and birds do not readily metabolize this material. The odor and flavor of EG may attract some wildlife and cause them to consume spilled material.
<b>Environmental Fate:</b>	Due care should be taken to avoid accidental releases of this material to aquatic and terrestrial environments. Ethylene glycol biodegrades rapidly in both soil and water, and will not persist in the environment. Ethylene glycol is highly soluble in water.
<b>Bioaccumulation:</b>	Because of EG's high solubility and rapid biodegradability, it is unlikely that it will bioaccumulate in aquatic or terrestrial systems.

## SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of all waste and contaminated equipment in accordance with all applicable federal, state and local health and environmental regulations. Recovery and reuse, rather than disposal, should be the ultimate goal of handling efforts. The materials resulting from clean-up operations may be hazardous wastes and therefore, subject to specific regulations.

## SECTION 14: TRANSPORT INFORMATION

<b>Proper Shipping Name</b>	Environmentally Hazardous Substance, Liquid, n.o.s. (Ethylene Glycol)
<b>DOT Hazard Class:</b>	9
<b>UN/NA ID:</b>	UN 3082
<b>Marine Pollutant:</b>	No

Packing Group: PG III

NAER Guidebook: 171

Labels: Class 9 (miscellaneous hazardous material) DOT Status:

Regulated material. RQ: see section 15.

**SECTION 15: REGULATORY INFORMATION**

**TSCA:** If identified components of this product are listed under the TSCA 12(b) Export Notification rule, they will be listed below.

**TSCA 12(b) Component****SARA - Section 313  
Emissions Reporting:****Component Summary:****Reporting Threshold**

Ethylene glycol / CAS# 107-21-1

1.0%

Diethylene glycol/CAS# 111-46-6

1.0%

**SARA - Section 311/312:**

Based upon available information, this material is classified as the following health and/or physical hazards according to Section 311 & 312:

Immediate (Acute) Health Hazard. Delayed (Chronic) Health Hazard. Fire Hazard.

**CERCLA Hazardous  
Substances and their  
Reportable Quantities:****Component Summary:****Reportable Quantity****California Prop. 65:**

Proposition 65 requires manufacturers or distributors of consumer products into the State of California to provide a warning statement if the product contains ingredients for which the State has found to cause cancer, birth defects or other reproductive harm. If this product contains an ingredient listed by the State of California to cause cancer or reproductive toxicity it will be listed below.

**SECTION 16: OTHER INFORMATION****DISCLAIMER OF  
RESPONSIBILITY**

The information on this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with handling, storage, use, or disposal of this product. If the product is used as a component in another product, this MSDS information may not be applicable.

**Latest Revision(s)**

Conversion to SAP template.

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